IN THE CLAIMS

1. (currently amended) A method of selecting ~~identifying~~ a personalized medical intervention for a non-rodent individual ~~predisposed to or having a disorder associated with at least one polymorphic marker in at least one gene or in at least one intergenic region~~, comprising the steps of:

(a) fusing cells of the non-rodent individual to rodent cell recipients to form non-rodent/rodent cell hybrids, wherein the non-rodent individual is predisposed to or has a disorder associated with at least one polymorphic marker in at least one gene or in at least one intergenic region;

(b) selecting for fused cell hybrids by selecting for a first selectable marker contained on a rodent chromosome and for a second selectable marker contained on a first non-rodent individual chromosome, to form a population of fused cell hybrids;

(c) detecting among the population of fused cell hybrids a subset of hybrids which are haploid for a second non-rodent individual chromosome which is not the same chromosome as the first non-rodent individual chromosome and which was not selected;

(d) analyzing said subset of hybrids to detect ~~a~~ the polymorphic marker in the at least one gene, in a product of the gene, or in the intergenic region, wherein the gene or intergenic region resides on the second non-rodent individual chromosome; and

(e) selecting a medical intervention for the non-rodent individual based on the presence or absence ~~identity~~ of the polymorphic marker ~~gene or intergenic region~~.

2. (original) The method of claim 1 wherein the polymorphic marker is a single nucleotide polymorphism.

3. (original) The method of claim 1 wherein the polymorphic marker is a microsatellite marker.

4. (original) The method of claim 1 wherein ~~the polymorphic marker is~~ a plurality of polymorphic markers is detected on the second non-rodent individual chromosome.

5. (original) The method of claim 1 wherein the polymorphic marker is a mutation.

6. (canceled)

7. (original) The method of claim 1, further comprising the step of providing the medical intervention to the non-rodent individual.

8. (original) The method of claim 1 wherein an mRNA product of the gene is analyzed in the subset of hybrids.

9. (original) The method of claim 1 wherein a protein product of the gene is analyzed in the subset of hybrids.

10. (original) The method of claim 1 wherein the gene is analyzed in the subset of hybrids.

11. (original) The method of claim 1 wherein the intergenic region is analyzed in the subset of hybrids.

12. (original) The method of claim 1 wherein the non-rodent individual is a human.

13. (original) The method of claim 1 wherein the non-rodent individual is a dog.

14. (original) The method of claim 1 wherein the subset of hybrids is analyzed to detect a plurality of polymorphic markers.

15. (original) The method of claim 1 wherein the subset of hybrids is analyzed to detect polymorphic markers in at least two different genes or in at least two different intergenic regions.

16. (original) The method of claim 1 wherein the polymorphic marker predisposes the individual to the disorder.

17. (original) The method of claim 16 wherein the medical intervention is a prophylactic intervention.

18. (original) The method of claim 1 wherein the polymorphic marker is causally related to the disorder.

19. (original) The method of claim 1 wherein the polymorphic marker is associated with responsiveness to a drug and wherein the medical intervention is administration of the drug.

20. (original) The method of claim 1 wherein the polymorphic marker is associated with resistance to a first drug useful for treating the disorder and wherein the medical intervention is administration of a second drug useful for treating the disorder.

21-70. (canceled)

71. (currently amended) A method of ~~using a correlation between a polymorphic marker and expression or reduced expression of a gene to select~~ selecting a personalized medical intervention for a non-rodent individual, comprising the steps of:

(a) assaying a biological sample obtained from the non-rodent individual for a polymorphic marker ~~polymorphism~~ which is correlated with expression or reduced expression of a gene associated with a disorder, wherein the correlation has been determined by a method comprising the steps of:

(1) fusing cells of the non-rodent individual to rodent cell recipients to form non-rodent/rodent cell hybrids;

(2) selecting for fused cell hybrids by selecting for a first selectable marker contained on a rodent chromosome and for a second selectable marker contained on a first non-rodent individual chromosome, to form a population of fused cell hybrids;

(3) detecting among the population of fused cell hybrids a subset of hybrids which are haploid for a second non-rodent individual chromosome which is not the same chromosome as the first non-rodent individual chromosome and which was not selected;

(4) analyzing said subset of hybrids to detect a polymorphic marker <u>in at least one gene or in at least one intergenic region, wherein the gene or intergenic region resides</u> on the second non-rodent individual chromosome;

(5) assaying for expression of a gene on the second non-rodent individual chromosome; and

(6) identifying the polymorphic marker as correlated with expression of the gene if the subset of hybrids comprises the polymorphic marker and the gene is expressed in the hybrids or identifying the polymorphic marker as correlated with reduced expression of the gene if the subset of hybrids comprises the polymorphic marker and expression of the gene is reduced in the hybrids; and

(b) selecting a medical intervention <u>for the non-rodent individual</u> based on the presence or absence of the polymorphic marker in the biological sample.

72. (original) The method of claim 71 wherein the medical intervention is a prophylactic intervention.

73. (currently amended) The method of claim 71 wherein the polymorphic marker predisposes the non-rodent individual to ~~a~~ the disorder.

74. (currently amended) The method of claim 71 wherein the polymorphic marker is causally related to ~~a~~ the disorder.

75. (original) The method of claim 71 wherein the polymorphic marker is associated with responsiveness to a drug and wherein the medical intervention is administration of the drug.

76. (original) The method of claim 71 wherein the polymorphic marker is associated with resistance to a first drug useful for treating the disorder and wherein the medical intervention is administration of a second drug useful for treating the disorder.

77. (new) The method of claim 71 wherein the polymorphic marker is a single nucleotide polymorphism.

78. (new) The method of claim 71 wherein the polymorphic marker is a microsatellite marker.

79. (new) The method of claim 71 wherein a plurality of polymorphic markers is detected on the second non-rodent individual chromosome.

80. (new) The method of claim 71 wherein the polymorphic marker is a mutation.

81. (new) The method of claim 71 further comprising the step of providing the medical intervention to the non-rodent individual.

82. (new) The method of claim 71 wherein an mRNA product of the gene is analyzed in the subset of hybrids.

83. (new) The method of claim 71 wherein a protein product of the gene is analyzed in the subset of hybrids.

84. (new) The method of claim 71 wherein the gene is analyzed in the subset of hybrids.

85. (new) The method of claim 71 wherein the intergenic region is analyzed in the subset of hybrids.

86. (new) The method of claim 71 wherein the non-rodent individual is a human.

87. (new) The method of claim 71 wherein the non-rodent individual is a dog.

88. (new) The method of claim 71 wherein the subset of hybrids is analyzed to detect a plurality of polymorphic markers.

89. (new) The method of claim 71 wherein the subset of hybrids is analyzed to detect polymorphic markers in at least two different genes or in at least two different intergenic regions.

90. (new) A method of selecting a personalized medical intervention for a non-rodent individual, comprising the steps of:

(a) fusing cells of the non-rodent individual to rodent cell recipients to form non-rodent/rodent cell hybrids;

(b) selecting for fused cell hybrids by selecting for a first selectable marker contained on a rodent chromosome and for a second selectable marker contained on a first non-rodent individual chromosome, to form a population of fused cell hybrids;

(c) detecting among the population of fused cell hybrids a subset of hybrids which are haploid for a second non-rodent individual chromosome which is not the same chromosome as the first non-rodent individual chromosome and which was not selected;

(d) analyzing said subset of hybrids to detect a polymorphic marker in at least one gene or in at least one intergenic region, wherein the gene or intergenic region resides on the second non-rodent individual chromosome;

(e) assaying for expression of a gene on the second non-rodent individual chromosome;

(f) identifying the polymorphic marker as correlated with expression of the gene if the subset of hybrids comprises the polymorphic marker and the gene is expressed in the hybrids or identifying the polymorphic marker as correlated with reduced expression of the gene if the subset of hybrids comprises the polymorphic marker and expression of the gene is reduced in the hybrids;

(g) assaying a biological sample obtained from the non-rodent individual for a polymorphism which is correlated with expression of a gene associated with a disorder; and

(h) selecting a medical intervention for the non-rodent individual based on the presence or absence of the polymorphic marker in the biological sample.

91. (new) The method of claim 90 wherein the polymorphic marker is a single nucleotide polymorphism.

92. (new) The method of claim 90 wherein the polymorphic marker is a microsatellite marker.

93. (new) The method of claim 90 wherein a plurality of polymorphic markers is detected on the second non-rodent individual chromosome.

94. (new) The method of claim 90 wherein the polymorphic marker is a mutation.

95. (new) The method of claim 90, further comprising the step of providing the medical intervention to the non-rodent individual.

96. (new) The method of claim 90 wherein an mRNA product of the gene is analyzed in the subset of hybrids.

97. (new) The method of claim 90 wherein a protein product of the gene is analyzed in the subset of hybrids.

98. (new) The method of claim 90 wherein the gene is analyzed in the subset of hybrids.

99. (new) The method of claim 90 wherein the intergenic region is analyzed in the subset of hybrids.

100. (new) The method of claim 90 wherein the non-rodent individual is a human.

101. (new) The method of claim 90 wherein the non-rodent individual is a dog.

102. (new) The method of claim 90 wherein the subset of hybrids is analyzed to detect a plurality of polymorphic markers.

103. (new) The method of claim 90 wherein the subset of hybrids is analyzed to detect polymorphic markers in at least two different genes or in at least two different intergenic regions.

104. (new) The method of claim 90 wherein the polymorphic marker predisposes the individual to the disorder.

105. (new) The method of claim 104 wherein the medical intervention is a prophylactic intervention.

106. (new) The method of claim 90 wherein the polymorphic marker is causally related to the disorder.

107. (new) The method of claim 90 wherein the polymorphic marker is associated with responsiveness to a drug and wherein the medical intervention is administration of the drug.

108. (new) The method of claim 90 wherein the polymorphic marker is associated with resistance to a first drug useful for treating the disorder and wherein the medical intervention is administration of a second drug useful for treating the disorder.

109. (new) A method of selecting a personalized medical intervention for a non-rodent individual, comprising the steps of:

(a) assaying a biological sample obtained from the non-rodent individual for a polymorphic marker in at least one gene or in at least one intergenic region, wherein the polymorphic marker is associated with a disorder, wherein the polymorphic marker is identified by a method comprising the steps of:

(1) fusing cells of the non-rodent individual to rodent cell recipients to form non-rodent/rodent cell hybrids;

(2) selecting for fused cell hybrids by selecting for a first selectable marker contained on a rodent chromosome and for a second selectable marker contained on a first non-rodent individual chromosome, to form a population of fused cell hybrids;

(3) detecting among the population of fused cell hybrids a subset of hybrids which are haploid for a second non-rodent individual chromosome which is not the same chromosome as the first non-rodent individual chromosome and which was not selected; and

(4) analyzing said subset of hybrids to detect the polymorphic marker in the at least one gene, in a product of the gene, or in the intergenic region, wherein the gene or intergenic region resides on the second non-rodent individual chromosome; and

(b) selecting a medical intervention for the non-rodent individual based on presence or absence of the polymorphic marker.

110. (new) The method of claim 109 wherein the polymorphic marker is a single nucleotide polymorphism.

111. (new) The method of claim 109 wherein the polymorphic marker is a microsatellite marker.

112. (new) The method of claim 109 wherein is a plurality of polymorphic markers is detected on the second non-rodent individual chromosome.

113. (new) The method of claim 109 wherein the polymorphic marker is a mutation.

114. (new) The method of claim 109, further comprising the step of providing the medical intervention to the non-rodent individual.

115. (new) The method of claim 109 wherein an mRNA product of the gene is analyzed in the subset of hybrids.

116. (new) The method of claim 109 wherein a protein product of the gene is analyzed in the subset of hybrids.

117. (new) The method of claim 109 wherein the gene is analyzed in the subset of hybrids.

118. (new) The method of claim 109 wherein the intergenic region is analyzed in the subset of hybrids.

119. (new) The method of claim 109 wherein the non-rodent individual is a human.

120. (new) The method of claim 109 wherein the non-rodent individual is a dog.

121. (new) The method of claim 109 wherein the subset of hybrids is analyzed to detect a plurality of polymorphic markers.

122. (new) The method of claim 109 wherein the subset of hybrids is analyzed to detect polymorphic markers in at least two different genes or in at least two different intergenic regions.

123. (new) The method of claim 109 wherein the polymorphic marker predisposes the individual to the disorder.

124. (new) The method of claim 123 wherein the medical intervention is a prophylactic intervention.

125. (new) The method of claim 109 wherein the polymorphic marker is causally related to the disorder.

126. (new) The method of claim 109 wherein the polymorphic marker is associated with responsiveness to a drug and wherein the medical intervention is administration of the drug.

127. (new) The method of claim 109 wherein the polymorphic marker is associated with resistance to a first drug useful for treating the disorder and wherein the medical intervention is administration of a second drug useful for treating the disorder.

128. (new) A method of correlating a polymorphic marker with expression or reduced expression of a gene in a non-rodent individual, comprising the steps of:

(a) fusing cells of the non-rodent individual to rodent cell recipients to form non-rodent/rodent cell hybrids;

(b) selecting for fused cell hybrids by selecting for a first selectable marker contained on a rodent chromosome and for a second selectable marker contained on a first non-rodent individual chromosome, to form a population of fused cell hybrids;

(c) detecting among the population of fused cell hybrids a subset of hybrids which are haploid for a second non-rodent individual chromosome which is not the same chromosome as the first non-rodent individual chromosome and which was not selected;

(d) analyzing said subset of hybrids to detect a polymorphic marker in at least one gene or in at least one intergenic region, wherein the gene or intergenic region resides on the second non-rodent individual chromosome;

(e) assaying for expression of a gene on the second non-rodent individual chromosome; and

(f) identifying the polymorphic marker as correlated with expression of the gene if the subset of hybrids comprises the polymorphic marker and the gene is expressed in the hybrids or identifying the polymorphic marker as correlated with reduced expression of the gene if the subset of hybrids comprises the polymorphic marker and expression of the gene is reduced in the hybrids.

129. (new) The method of claim 130 wherein the polymorphic marker is a single nucleotide polymorphism.

130. (new) The method of claim 130 wherein the polymorphic marker is a microsatellite marker.

131. (new) The method of claim 130 wherein a plurality of polymorphic markers is detected on the second non-rodent individual chromosome.

132. (new) The method of claim 130 wherein the polymorphic marker is a mutation.

133. (new) The method of claim 130 wherein an mRNA product of the gene is analyzed in the subset of hybrids.

134. (new) The method of claim 130 wherein a protein product of the gene is analyzed in the subset of hybrids.

135. (new) The method of claim 130 wherein the gene is analyzed in the subset of hybrids.

136. (new) The method of claim 130 wherein the intergenic region is analyzed in the subset of hybrids.

137. (new) The method of claim 130 wherein the non-rodent individual is a human.

138. (new) The method of claim 130 wherein the non-rodent individual is a dog.

139. (new) The method of claim 130 wherein the subset of hybrids is analyzed to detect a plurality of polymorphic markers.

140. (new) The method of claim 130 wherein the subset of hybrids is analyzed to detect polymorphic markers in at least two different genes or in at least two different intergenic regions.

141. (new) The method of claim 130 wherein the polymorphic marker predisposes the individual to a disorder.

142. (new) The method of claim 130 wherein the polymorphic marker is causally related to a disorder.

143. (new) The method of claim 130 wherein the polymorphic marker is associated with responsiveness to a drug.

144. (new) The method of claim 130 wherein the polymorphic marker is associated with resistance to a drug.